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Installing Media Dependent Adapters for the 8672ATME and 8672ATMM Modules

NORTEL

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EMI Compliance

Meets requirements of:

FCC Part 15, Subparts A and B, Class A
EN55022: 1998/CISPR22:1997), Class A
General License VDE 0871, Class B
(AmtsblVfg No. 243/1991, Vfg 46/1992) VCCI Class A ITE
EN55024:1998/CISPR24:1997

Caution: Use of controls or adjustments, or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Caution: Only qualified technicians should install this equipment.

Place all printed circuit boards on an antistatic mat until you are ready to install them. If you do not have an antistatic mat, wear a discharge leash to free yourself of static before touching any of the printed circuit boards, or free yourself of static by touching a grounded metal object before handling a printed circuit board.

Product Safety

Meets requirements of:

CSA 22.2 No. 950-M95/UL1950, 3rd ed.
EN60950: 1992 /A1:1993 /A2:1993 /A3:1995 /A4:
199721CFR, Chapter I
EN60825-1:1994 /A11:1996

Caution: Fiber optic equipment can emit laser or infrared light that can injure your eyes. Never look into an optical fiber or connector port. Always assume that fiber optic cables are connected to a light source.

Caution: Glasfaserkomponenten können Laserlicht bzw. Infrarotlicht abstrahlen, wodurch Ihre Augen geschädigt werden können. Schauen Sie niemals in einen Glasfaser-LWL oder ein Anschlußteil. Gehen Sie stets davon aus, daß das Glasfaserkabel an eine Lichtquelle angeschlossen ist.

Caution: L'équipement à fibre optique peut émettre des rayons laser ou infrarouges qui risquent d'entraîner des lésions oculaires. Ne jamais regarder dans le port d'un connecteur ou d'un câble à fibre optique. Toujours supposer que les câbles à fibre optique sont raccordés à une source lumineuse.

Caution: Los equipos de fibra óptica pueden emitir radiaciones de láser o infrarrojas que pueden dañar los ojos. No mire nunca en el interior de una fibra óptica ni de un puerto de conexión. Suponga siempre que los cables de fibra óptica están conectados a una fuente luminosa.

Caution: Le apparecchiature a fibre ottiche emettono raggi laser o infrarossi che possono risultare dannosi per gli occhi. Non guardare mai direttamente le fibre ottiche o le porte di collegamento. Tenere in considerazione il fatto che i cavi a fibre ottiche sono collegati a una sorgente luminosa.

Required Tool

These procedures require a Phillips screwdriver #1.

Introduction

The Media Dependent Adapters (MDAs) for the Nortel* 8672ATM, 8672ATME, and 8672ATMM Modules are modular port adapters that you install on the module.

Each of these modules have two slots for MDAs. You can install up to two of the following MDAs:

- 1-port OC-12c/STM-4 (Figure 1)
- 4-port OC-3c/STM-1 (Figure 2)
- 2-port DS-3 (Figure 3)

Figure 1 OC-12c/STM-4 MDA: 8672ATME and 8672ATMM Modules

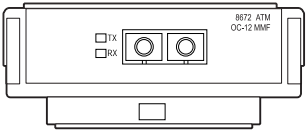

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Figure 2 OC-3c/STM-1 MDA: 8672ATME and 8672ATMM Modules

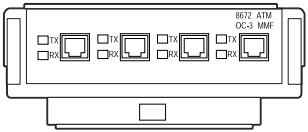

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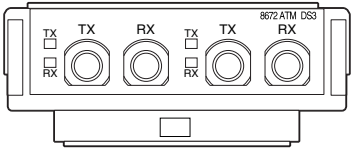
Figure 3 DS-3 MDA: 8672ATME and 8672ATMM Modules



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Each MDA has ports for connection to an ATM network. You can mix types of MDAs to achieve flexibility in connectivity types. Table 1 shows the available types of MDAs for the 8672ATM, 8672ATME, and 8672ATMM Modules.

Table 1 MDAs for the 8672ATM, 8672ATME and 8672ATMM Modules

Port type	Model	Cable type	Connector type
OC-12c/STM-4	DS1304004	Multimode fiber	Duplex SC
	DS1304005	Single mode fiber	Duplex SC
OC-3c/STM-1	DS1304006	Multimode fiber	MT-RJ
	DS1304007	Single mode fiber	MT-RJ
DS-3	DS1304002	75 ohm coaxial	BNC

Note: The OC-3c/STM-1 and OC-12c/STM-4 MDAs support concatenated transmission.

The OC-3c/STM-1 and OC-12c/STM-4 MDAs for the 8672ATME and 8672ATMM Modules are class 1 laser products as identified by the label on the MDA (Figure 4).

Figure 4 Product label for the 8672 ATME and 8672ATMM Module MDA- OC-3c/STM-1 and OC-12c/STM-4

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This manual provides the following information:

Topic	Page
Installing an MDA	7
Replacing an MDA	11
Connecting fiber cables	13
Connecting coaxial cables	18
MDA Specifications	19
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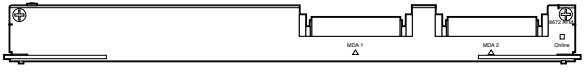
Installing an MDA

Warning: You cannot hot-swap an MDA. You must remove the 8672ATME or 8672ATMM Module, install the MDA, and then reinstall the module. For more information about removing and installing the 8672ATME and 8672ATMM Modules, refer to *Installing 8600 Switch Modules*.

To install an MDA:

1 Lay the 8672ATME or 8672ATMM Module (Figure 5) on a flat, static-free surface.

Figure 5 8672ATME or 8672ATMM Module



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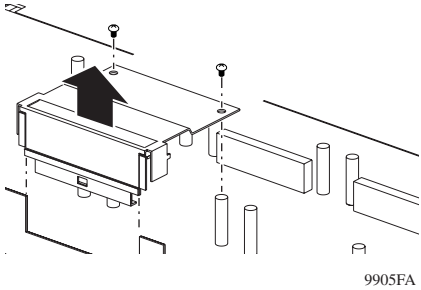
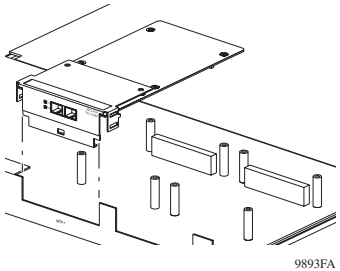
2 Lift the cover out of the MDA slot by unscrewing the two screws and lifting the cover straight up (Figure 6). Set the cover aside for possible future use.

Figure 6 Removing the MDA slot covers



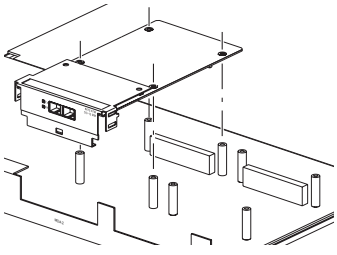
3 Line up the MDA with the front of the 8672ATME or 8672ATMM Module, positioning the MDA so that the front aligns with the front of the 8672ATME or 8672ATMM Module (Figure 7).

Figure 7 Aligning the MDA with the front of the module



4 Align the four holes on the MDA with the mounting posts on the 8672ATME or 8672ATMM Module (Figure 8).

Figure 8 Aligning the MDA with the posts of the module



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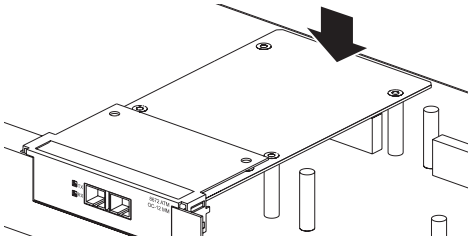
5 Press firmly on the MDA in the middle of the back to seat the MDA in the mounting posts on the module (Figure 9). Apply about 20 pounds of pressure.

Figure 9 Seating the MDA on the module



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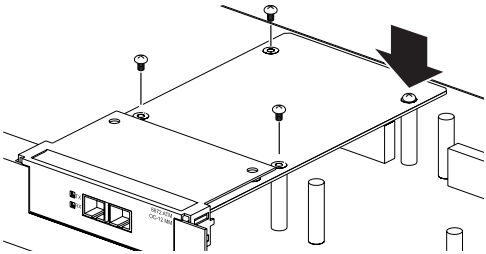
When the MDA is seated properly, the posts of the module are visible in the holes of the MDA.

6 Insert the Phillips pan head screws through the holes (Figure 10). Use the #1 Phillips screwdriver to tighten the screws.

Note: Tighten the rear screws first before you tighten the front screws.

Figure 10 Tightening the screws



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7 For each MDA installed, attach the supplied laser product label to the front panel of the host module, immediately below the MDA. Use the label that is printed in the appropriate language for the country where you are installing the equipment.

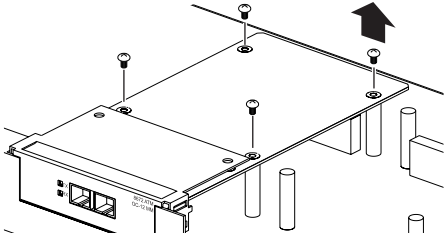
Replacing an MDA

Warning: You cannot hot-swap an MDA. You must remove the 8672ATME or 8672ATMM Module, install the MDA, and then reinstall the module. For more information about removing and installing the 8672ATME and 8672ATMM Modules, refer to *Installing 8600 Switch Modules*.

To replace an MDA:

1. Remove the 8672ATME or 8672ATMM Module from the chassis and lay it on a flat, static-free surface. For information about removing a module from the chassis, refer to *Installing 8600 Switch Modules*.
2. Using the screwdriver, unscrew the four screws from the MDA you want to remove (Figure 11).

Figure 11 Preparing an MDA for removal



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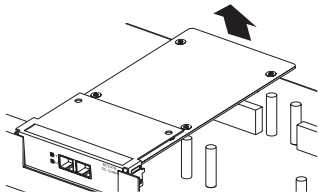
3 Place the palm of your hand on top of the MDA, and cup your fingers around the back of the MDA. Lift the MDA enough to loosen it from the mounting posts (Figure 12).

Figure 12 Loosening the MDA from the mounting posts



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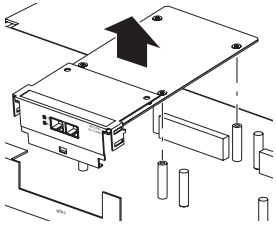
4 When the MDA is loosened from the mounting posts, hold the sheet metal by each side and lift the MDA straight up, being careful not to catch the lip of the MDA on the module (Figure 13). Store the MDA in a static-free container for later use.

Figure 13 Removing the MDA from the module



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5 Refer to “Installing an MDA” on page 7 for instructions on installing the replacement MDA

Note: If you do not plan to install a replacement MDA, place the slot cover on the MDA slot and tighten the 2 screws.

Connecting fiber cables

The OC-12c/STM-4 MDA uses duplex SC connectors (Figure 14), and the OC-3c/STM-1 MDA uses MT-RJ connectors (Figure 15).

Figure 14 OC-12c/STM-4 MDA duplex SC connector with dust caps

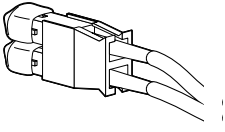

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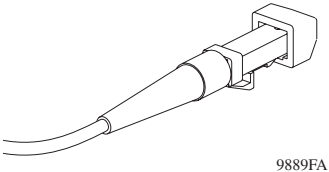
Figure 15 OC-3c MDA/STM-1 MT-RJ connector with dust cap



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To connect fiber cables:

1 Remove the protective dust plug from the connector on the installed MDA (Figure 16 or Figure 17). Store the dust plug for later use.

Figure 16 Removing the dust plug from the OC-12c/STM-4 MDA (SC) connector

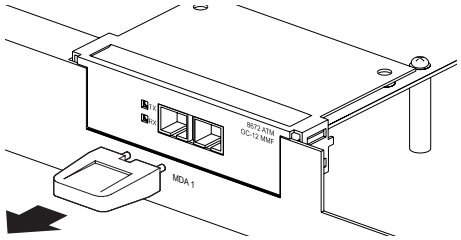

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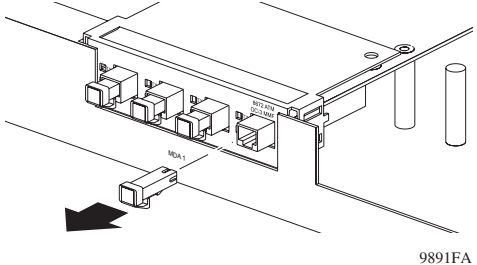
Figure 17 Removing the dust plug from the OC-3c/STM-1 MDA (MT-RJ) connector



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2 Remove the protective dust caps from the connector on the fiber cable (Figure 18 or Figure 19). Store the dust caps for later use.

Figure 18 Removing the dust caps from the SC fiber cable connector

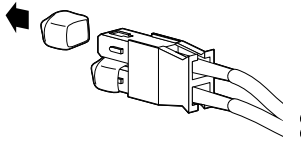

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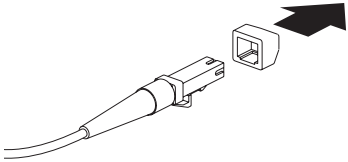
Figure 19 Removing the dust cap from the MT-RJ fiber cable connector



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3 Hold the fiber cable connector so the keyed surface will insert easily into the MDA connector. Carefully insert the cable connector into the MDA connector and push gently (Figure 20 or Figure 21).

Figure 20 Inserting the cable connector into the OC-12c/STM-4 MDA (SC) connector

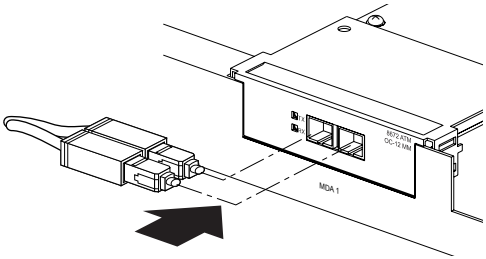

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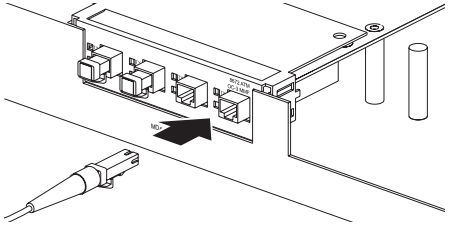
Figure 21 Inserting the cable connector into the OC-3c/STM-1 MDA (MT-RJ) connector



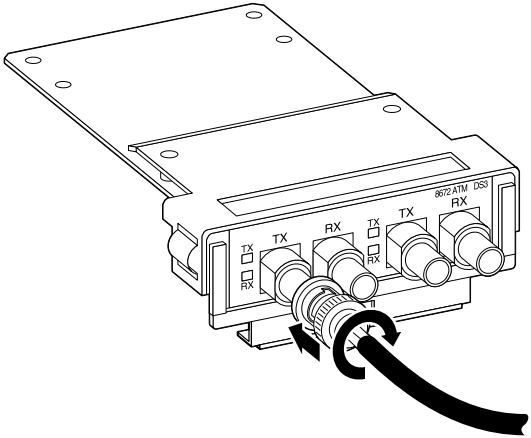
Connecting coaxial cables

The DS-3 MDA uses BNC connectors (Figure 22).

To connect a coaxial cable to a DS-3 MDA:

1 Push the coaxial cable onto the DS-3 connector (Figure 22).

Figure 22 Connecting the coaxial cable to a DS-3 MDA



2 Turn the coaxial cable to the right until the key on the DS-3 connector clicks into the notch on the coaxial cable.

MDA Specifications

The OC-3c/STM-1 MDA uses SONET STS-3c/SDH STM-1 1300 nm optical transceivers with MT-RJ fiber optic connectors and either single mode fiber (SMF) or multimode fiber (MMF) cabling.

Table 2 describes the 8672ATME and 8672ATMM Modules MDA- OC-3c and OC-12c specifications.

Table 2 8672ATME and 8672ATMM Modules MDA specifications- OC-3c/STM-1 and OC-12c/STM-4

Port type	Operating wavelength	Operating power	Pulse repetition rate
OC-12c/STM-4	1274-1356 nm	-14 to -20 dBm	622.08 Mb/s
	1260-1360 nm	-8 to -15 dBm	622.08 Mb/s
OC-3c/STM-1	1274-1356 nm	-14 to -20 dBm	155.52 Mb/s
	1260-1360 nm	-8 to -15 dBm	155.52 Mb/s

Note: See Table 5 for DS-3 specifications.

Table 3 describes the OC-3c/STM-1 MDA 8672ATME and 8672ATMM Modules specifications.

Table 3 OC-3c/STM-1 MDA specifications: 8672ATME and 8672ATMM Modules

Parameter	SMF description	MMF description
Physical media	9/125 um	62.5/125 um
Line code	NRZ	NRZ
Wavelength	1274 to 1356 nm	1274 to 1356 nm
Average transmit output power	-8 to -15 dBm	-14 to -20 dBm
Average receiver sensitivity	-8 to -28 dBm	-14 to -30 dBm
Distance	15 km	2 km
Input power	40 W	40 W
Thermal rating	138 BTU/hour maximum	138 BTU/hour maximum

The OC-12c/STM-4 MDA uses SONET STS-3c/SDH STM-1 1300 nm optical transceivers with duplex SC-type fiber optic connectors and either single mode fiber (SMF) or multimode fiber (MMF) cabling. Table 4 describes the OC-12c/STM-4 MDA 8672ATME and 8672ATMM Modules specifications.

Table 4 OC-12c/STM-4 MDA specifications: 8672ATME and 8672ATMM Modules

Parameter	SMF description	MMF description
Physical media	9/125 um	62.5/125 um
Line code	NRZ	NRZ
Wavelength	1274 to 1356 nm	1274 to 1356 nm
Average transmit output power	-8 to -15 dBm	-14 to -20 dBm
Average receiver sensitivity	-8 to -28 dBm	-14 to -26 dBm
Distance	15 km	500 m
Input power	40 W	40 W
Thermal rating	138 BTU/hour maximum	138 BTU/hour maximum

The DS-3 MDA uses a 75 ohm coaxial cable. Table 5 describes the DS-3 MDA.

Table 5 DS-3 MDA specifications: 8672ATME and 8672ATMM Modules

Parameter	Specification
Line rate	44,736 Mb/s (20 ppm)
Impedence	75 ohms
Maximum length	450 feet (135 m)

LEDs

The MDAs have two bicolor LEDs on each port: one marked TX (transmit) and one marked RX (receive). Table 6 describes the LEDs.

Table 6 MDA LED indications

Label	Color	State	Meaning
TX	Green	Steady	Indicates network activity for the corresponding port. A very low level of network activity (approximately 1-5 pps) can cause the LED to blink.
	—	Off	The port is not transmitting data (no network activity).
	Amber	Blinking	The port is out of order; the administrative state is down.
RX	Green	Blinking	Indicates network activity for the corresponding port (the port is receiving traffic).
	Green	Steady	The port is operational; no network activity.
	Amber	Blinking	The port is not operational; the administrative state is down.
	Amber	Steady	A Remote Defect Indication (RDI)[1] alarm condition has been detected; the administrative state is down.
	—	Off	The port is not operational (be sure that the MDA is fully seated in the slot; check that the port is properly configured).

1. Remote defect indications (RDI) indicates that a failure has occurred at the far end of the network. In ATM, when the physical layer detects loss of signal or cell synchronization, RDI cells are used to report a VPC/VCC failure. RDI cells are sent upstream by a VPC/VCC endpoint to notify the source VPC/VCC endpoint of the downstream failure.